NTIS No: NTN90-0413/HDM
Title: Force-Feedback Cursor Control: A robot controller would move a cursor and manipulate images; NTIS Tech Note
Performing Organization: National Aeronautics and Space Administration, Washington, DC.
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Date: May 90 Pages: 1p NTIS Price Code: Not Available NTIS
Language: English Country: United States
Abstract: This citation summarizes a one-page announcement of technology available for utilization. The use of force-feedback hand-held controllers has been proposed to help computer operators position cursors on computer video displays. Such controllers were originally developed for controlling remote manipulators on robots: they transmit users' hand and finger movements to the manipulators and feed back, to the users' hand, forces that represent the interactions of the manipulators with the manipulated objects. To control a cursor, a hand controller would replace a joystick or electronic mouse. As with a joystick or mouse, motion of the handlelike controller in a plane would move the cursor horizontally and vertically on the screen. The operator would press a button on the handle to obtain the action when the cursor reaches the desired position indicated by an icon or image. Unlike a joystick or mouse, the controller would have additional degrees of freedom. Thus, icons on the screen could be made to respond to movement toward or away from the screen and to rotations. With special software, the force-feedback ability of the controller could be brought into play. Force feedback could repel the controller and cursor from the boundaries of images and attract them toward the centers, preventing the cursor from being set in ambiguous positions. Force feedback could also guide the operator's hand in following straight lines and even along curves.
Descriptors: *Control equipment; *Feedback control; *Display devices
Identifiers: *Man computer interface; NTISNTND
NTIS Subject Codes: 62A (Computers, Control, and Information Theory--Computer Hardware); 62C (Computers, Control, and Information Theory--Control Systems and Control Theory)

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NTIS No: AD-A216 279/0/HDM
Title: 3-D Virtual Environment Display System; Master's thesis
Author(s): Filer, R. E.
Performing Organization: Air Force Inst. of Tech., Wright-Patterson AFB, OH. School of Engineering.
Report No: AFIT/GCS/ENG/89D-2
Date: Dec 89 Pages: 96p NTIS Price Code: PC A05/MF A01
Language: English Country: United States
Document Type: Thesis
Abstract: The design and development of a Virtual Environment Display System is presented. The system is composed of two main parts, a software library to support the development of virtual environment applications and a head-mounted display for viewing the virtual environment. The software library provides support for numerous input devices including a VPL DataGlove, Polhemus 3-Spaced Tracker, Dimension Six Force-Torque Ball, and a joystick. Graphical objects can be displayed in either wire frame or shaded mode. Three dimensional pop-up menus are provided. The head-mounted display is a fully-enclosed viewing device built using off-the-shelf components. The displays are color LCD televisions and are viewed through wide angle optics. Head position and orientation are tracked using a Polhemus 3-Space Tracker. Theses. (AW)
Descriptors: Computer programs; Frames; *Computer graphics; *Head up displays; Input; Libraries; Menu; Mounts; Off the shelf equipment; Optics; Position(Location); *Television equipment; Theses; Three dimensional; Wide angles; Wire; *Liquid crystal display systems; Tracking
Identifiers: Software Libraries; Datagloves; Tracking Systems; Joysticks; Polhemus-3 Space Tracker; NTISDODXA